Contents

number 1

Notes to Contributors 1

PLANTS

Molecular Analysis of Intraspecific Variation in the Marine Diatom *Skeletonema costatum*
J. E. Stabile, J. C. Gallagher & E. T. Wurtzel 5

Chemical Markers of the Psilotaceae
S. Takahashi, F. Nakamura, N. Sahashi, T. Ohmoto, U. Mizushima, U. Sankawa & G. H. N. Towers 11

Terpenes from the Maritime Pine *Pinus pinaster:* Toxins for Subterranean Termites of the Genus *Reticulitermes* (Isoptera: Rhinotermitidae)?
P. Nagnan & J. L. Clement 13

Flavonoids of *Arnica sachalinensis,* subgenus *Andropurpurea*
C. M. Paßreiter, I. Merfort & G. Willuhn 17

The Origin of *Helianthus* × *multiflorus* and *H.* × *laetiflorus* (Asteraceae)
O. Spring & E. E. Schilling 19

The Relationship Between Structure and Antimicrobial Activity in Quinones from the Celastraceae
L. Moujir, A. M. Gutiérrez-Navarro, A. G. González, A. G. Ravelo & J. G. Luis 25

Evidence for Internal Sequence Homologies in Leguminosae Lectins: Phylogenetical Implications
P. Rougé & J.-L. Risler 29

The Composition and Properties of Eight Gum Exudates (Leguminosae) of American Origin
D. M. W. Anderson, Wang Weiping & G. P. Lewis 39

The Composition of Some *Sesbania* Gum Exudates
D. M. W. Anderson & Wang Weiping 43

Alkaloids of *Arctomecon* Species (Papaveraceae). 12-Methoxyallocryptopine, a New Protopine-type Alkaloid
D. E. Raynie, M. L. Lee, D. R. Nelson, K. T. Harper, E. W. Mead & F. R. Stermitz 45

Phytochemistry and Phylogenetic Affinities Among Egyptian Species of *Fagonia*
N. A. M. Saleh, M. N. El-Hadidi & S. A. M. Al-Wakeel 49

ANIMALS

Chemotaxonomic Considerations in Relation to Sponges of the Genera *Reniera* and *Haliclona*
J. Rovirosa, M. de la Luz Vásquez & A. San-Martín 53

Allozyme Variation in Two Forest Populations of *Platynothrus peltifer* (Acari: Oribatida)
H. V. Ziegler, T. Backeljau & G. Wauthy 57

Individual, Geographical and Experimental Variation of Cuticular Hydrocarbons of the Ant *Cataglyphis cursor* (Hymenoptera: Formicidae): Their Use in Nest and Subspecies Recognition
E. Nowbahari, A. Lenoir, J. L. Clément, C. Lange, A. G. Bagneres & C. Joulie 63
Transferrin Variation in the Longnose Sucker, *Catostomus catostomus*, from the Yukon and Mackenzie Rivers
T. P. Birt, R. E. Dillinger Jr, J. M. Green & W. S. Davidson 75
Genetic Variation in the Hawaiian Stream Goby, *Lentipes concolor*
J. M. Fitzsimons, R. M. Zink & R. T. Nishimoto 81

BOOK REVIEWS 85

number 2/3

PLANTS

Chemosystematic and Biogeographic Studies of the Diterpenes from the Marine Brown Alga *Dictyota dichotoma*
V. L. Teixeira, S. A. da Silva Almeida & A. Kelecom 87
Polar Lipids of Marine Macrophytic Algae as Chemotaxonomic Markers
S. V. Khotimchenko, N. G. Klochkova & V. E. Vaskovsky 93
Fatty Acids, Free Amino Acids and Sterols from Some Species of *Stropharia* and *Stereum*
F. Senatore 103
Comparison of Free Sugars in Growing and Desiccated Plants of *Selaginella lepidophylla*
R. P. Adams, E. Kendall & K. K. Kartha 107
Allozyme Variation of *Thuja occidentalis* L. in Northwestern Ontario
D. J. Perry, P. Knowles & F. C. Yeh 111
Monoterpene Variability of *Pinus monticola* Wood
E. Zavarin, K. Snajberk & L. Cool 117
Chemical Differentiation in Relation to the Morphology of the Single-Needle Pinyons
E. Zavarin, K. Snajberk & L. Cool 125
The Sesquiterpene Lactone Chemistry of *Helianthus* Sect. *Ciliares* (Asteraceae: Heliantheae)
O. Spring & E. E. Schilling 139
Seasonal Variation in Leaf Exudate Flavonoids of *Isocoma acradenia* (Asteraceae)
L. E. Clark & W. D. Clark 145
Prenylated *p*-Hydroxyacetophenone Derivatives from the Giant *Senecio johnstonii*
S. Dupré, F. Bohlmann & E. Knox 149

The Flavonoids of Egyptian *Chrozophora* Species
O. K. Hashim, M. M. Abou-Zaid, F. M. Abdel-Galil & N. A. M. Saleh . . 151
Light-activated Toxins of the Moraceae
L. A. Swain & K. R. Downum 153
Floral Scents in *Hypecoum* Sect. *Hypecoum* (Papaveraceae): Chemical Composition and Relevance to Taxonomy and Mating System
Å. E. Dahl, A.-B. Wassgren & G. Bergström 157

ANIMALS

Allozyme Variation in a Natural Contact Zone Between *Gambusia affinis* and *Gambusia holbrooki*
M. C. Wooten & C. Lydeard 169
On the Biochemical Systematics of the Caprini and the Rupicaprini
G. B. Hartl, H. Burger, R. Willing & F. Suchentrunk 175
Herbivore Growth Reduction by Tannins: Use of Waldbauer Ratio Techniques and Manipulation of Salivary Protein Production to Elucidate Mechanisms of Action
S. Mole, J. C. Rogler, C. J. Morell & L. G. Butler 183
Rétro-transposition de la Séquence Humaine Homologue à la p49f sur le Chromosome Y au cours de l'Evolution des Singes Anthropoïdes
G. Lucotte, V. Barriel, P. Guerin, N. Abbas & J. Ruffie 199

Book Reviews 205

number 4

PLANTS

Juniperus procera* of East Africa: Volatile Leaf Oil Composition and Putative Relationship to *J. excelsa
R. P. Adams 207
Nonlinear Effects of Water Deficits on Foliar Tannin Concentration
J. D. Horner 211
Seasonal Patterns in the Allelochemicals of *Pseudotsuga menziesii, Picea engelmanii* and *Abies concolor*
M. R. Wagner, K. M. Clancy & R. W. Tinus 215
Detection of New Flavonoid Patterns in Foxtail Millet [*Setaria italica* (L.) Beauv.]: Comparison Between Pure Lines and Hybrids
K. Gluchoff-Fiasson, M. Jay & M.-R. Viricel 221
Polyacetylenes in Related Thistles of the Subtribes Centaureinae and Carduinae
K. L. Stevens, S. C. Witt & C. E. Turner 229
Patterns of Infraspecific Chloroplast DNA Variation in Species of *Silene* Sect. *Elisanthe*
J. M. Sandbrink, A. C. van Bruggen & J. van Brederode 233

Ribosomal DNA Evidence for Hybridization Between Island Endemic Species of *Lotus*
A. Liston, L. H. Rieseberg & O. Mistretta 239
A Chemotaxonomical Study of Some Portuguese *Sideritis* Species
F. A. Tomás-Barberán, F. Ferreres, F. Tomás-Lorente, D. Rivera-Núñez & C. Obón-de Castro 245
Alkaloids and Limonoids of *Tetradium trichotomum*: Chemotaxonomic Significance
A. Quader, P. P.-H. But, A. I. Gray, T. G. Hartley, Y.-J. Hu & P. G. Waterman 251
Allozymic Relationships of *Arceuthobium campylopodum* and Allies in California
D. L. Nickrent & T. L. Butler 253
Electrophoretic Evidence for Genetic Differentiation in Two Host Races of Hemlock Dwarf Mistletoe (*Arceuthobium tsugense*)
D. L. Nickrent & A. L. Stell 267

ANIMALS

Apport de l'Electrofocalisation à la Systematique du Genre *Agkistrodon* (Crotalinae)
N. Pichon-Prum, O. Rolland & L. Debourcieu 281
Defense Against Dietary Tannin in Herbivores: a Survey for Proline Rich Salivary Proteins in Mammals
S. Mole, L. G. Butler & G. Iason 287

Book Reviews 295

number 5

PLANTS

Carotenoids of *Chrysochromulina polylepis* (Prymnesiophyceae)
B. Bjerkeng, M. Vernet, M. V. Nielsen & S. Liaaen-Jensen 303
Chromatographic Separation and Spectrometric Characterization of Native Carotenoids from the Marine Dinoflagellate *Thoracosphaera heimii*
T. Bjørnland 307
Occurrence of the Very Rare Carotenoid Triphasiaxanthin in Leaves of Two Cycads
F. Cardini, G. Britton, A. Selva & M. Chelli 317
Isoenzymatic Variability Among Populations and Varieties of Wild Leek (*Allium tricoccum*)
L. Vasseur, D. Gagnon & J.-P. Simon 321
Antifungal Activities of Sunflower Terpenoids
A. K. Picman, E. F. Schneider & J. Gershenzon 325

Systematic Aspects of Phytoalexin Formation within Tribe Phaseoleae of the Leguminosae (Subfamily Papilionoideae)
J. L. Ingham 329
Acyl Histamines and a Rare Protopine-type Alkaloid from Leaves of *Zanthoxylum dipetalum*
R. L. Arslanian, B. Mondragon, F. R. Stermitz & K. L. Marr 345

ANIMALS

Scalarane Sesterterpenes from *Collospongia auris,* a New Thorectid Sponge
P. R. Bergquist, R. C. Cambie & M. R. Kernan 349
Phylogenetic Relationships of *Ips* Bark Beetles (Coleoptera: Scolytidae): Electrophoretic and Morphometric Analyses of the *grandicollis* Group
J. H. Cane, M. W. Stock, D. L. Wood & S. J. Gast 359
Exocrine Secretions of Scentless Plant Bugs: *Jadera, Boisea* and *Niesthrea* Species (Hemiptera: Heteroptera: Rhopalidae)
J. R. Aldrich, S. P. Carroll, J. E. Oliver, W. R. Lusby, A. A. Rudmann & R. M. Waters 369
Off-flavor from Commercial Crustaceans from the North Atlantic Zone
U. Anthoni, C. Larsen, P. H. Nielsen & C. Christophersen 377
Xanthine Dehydrogenase Isozymes in Twenty Species of Teleostean Fishes: Tissue Distribution and Possible Taxonomic Significance
B. K. Padhi & A. R. Khuda-Bukhsh 381

Book Reviews 387

number 6

PLANTS

Foliar Flavonoids of the *Carex nigromarginata* Complex (Sect. *Acrocystis,* Cyperaceae)
J. H. Rettig & D. E. Giannasi 393
Pigment Composition of Flowers of *Tulipa* Species as a Parameter for Biosystematic Research
M. Nieuwhof, L. W. D. van Raamsdonk & J. P. van Eijk 399
Essential Oil Variation in *Tagetes minuta* Populations
J. A. Zygadlo, N. R. Grosso, R. E. Abburra & C. A. Guzman 405
Structural Map of *Sedum oreganum* (Crassulaceae) Chloroplast DNA
S. D. Sundberg, M. F. Denton & S. A. Rehner 409
***Acacia* Gum Exudates from Somalia and Tanzania: the *Acacia senegal* Complex**
D. M. W. Anderson & Wang Weiping 413
Structural Homologies Between Leguminosae Lectins as Revealed by the Hydrophobic Cluster Analysis (HCA) Method
P. Rougé & L. Varloot 419

Phytolacca dodecandra **(Phytolaccaceae) in Africa: Geographical Variation in Leaf Chemistry**
R. P. Adams, R. M. Parkhurst, L. Wolde-Yohannes & L. P. Makhubu . . 429
Cyanohydrin Glucosides of Turneraceae
E. S. Olafsdottir, J. W. Jaroszewski & M. M. Arbo 435
Phytochemical Affinity of *Populus angustifolia* with Sect. *Aigeiros* Poplars Established by GC-MS of Bud Exudate
W. Greenaway, S. English & F. R. Whatley 439

ANIMALS

Population Genetics and Biochemical Systematics of Marsh Flies in the *Sepedon fuscipennis* Group (Diptera: Sciomyzidae)
S. Manguin 447
Kinship in Communally Nesting *Andrena* (Hymenoptera: Andrenidae) Bees is Indicated by Composition of Dufour's Gland Secretions
M. Ayasse, R. Leys, P. Pamilo & J. Tengö 453
Virus Epizootics in Californian Populations of *Spodoptera exigua*: Dominance of a Single Viral Genotype
W. D. Gelernter & B. A. Federici 461
Analysis of Mitochondrial DNA by Restriction Endonucleases to Distinguish Three Species of Ariid Catfish from the Arabian Gulf
M. Simsek, D. M. Olive & J. M. Al-Hassan 467

Book Reviews 471

number 7/8

PLANTS

Interspecific Allozyme Variation among *Morchella* spp. and its Inferences for Systematics within the Genus
D. J. Royse & B. May 475
Nyasol and 1,3(5)-Diphenyl-1-pentene Related Glycosides from *Hypoxis angustifolia*
S. Sibanda, O. Ntabeni, M. Nicoletti & C. Galeffi 481
The Flavonoids of *Ageratina deltoidea*
S.-L. Yang, R. A. King & M. F. Roberts 485
The Chemosystematics of Egyptian *Euphorbia* Species
S. A. Kawashty, M. F. Abdalla, M. N. El-Hadidi & N. A. M. Saleh . . 487
Leaf Surface Flavonoids of *Eriodictyon trichocalyx*
B. A. Bohm & H. Constant 491
Plasticity and Genotypic Variation in some *Mentha* × *verticillata* Hybrids
M. Maffei 493
Alkaloids as Taxonomic Characters in the Tribe Crotalarieae (Fabaceae)
B.-E. Van Wyk & G. H. Verdoorn 503

Allozyme Diversity and Introgression in the Galapagos Islands Endemic *Gossypium darwinii* and its Relationship to Continental *G. barbadense*
J. F. Wendel & R. G. Percy 517
Flavonoid Systematics of Ten Sections of *Ludwigia* (Onagraceae)
J. E. Averett, E. M. Zardini & P. C. Hoch 529
Surface Lipid Composition of C_3 and C_4 Plants
A. Bianchi & G. Bianchi 533

ANIMALS

Substrate Specificity of Esterases in a Solitary Bee, *Megachile rotundata* (Hymenoptera: Megachilidae): Variability in Sex, Age and Life Stage
D. R. Frohlich 539
Transformation of Plant Pyrrolizidine Alkaloids into Novel Insect Alkaloids by Arctiid Moths (Lepidoptera)
T. Hartmann, A. Biller, L. Witte, L. Ernst & M. Boppré 549
Enzyme Polymorphism in Three Species of *Metanephrops* (Decapoda: Nephropidae) from Taiwan
K. H. Chu, S.-C. Lee & S. C. M. Tsoi 555
Allozyme Variation and the Recognition of the "White Stickleback"
T. R. Haglund, D. G. Buth & D. M. Blouw 559
Comparison of LDH-B_4 Allozymes of Macrourids (Teleostei:Gadiformes) by Electrophoresis and Peptide Mapping
R. R. Wilson, Jr, J. F. Siebenaller & B. J. Davis 565
The *Crocidura fuliginosa* Species Complex (Mammalia: Insectivora) in Peninsular Malaysia: Biological, Karyological and Genetical Evidence
M. Ruedi, T. Maddalena, H.-S. Yong & P. Vogel 573

Book Reviews 583

Corrigendum 589